Let's Talk About Sex – Or Not: Sexual Communication, Self-Efficacy, and Sexual Healthcare Use Among Individuals With and Without Communication Difficulties

by

Shelby Aleta Hughes

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Department of Communication Sciences and Disorders
University of Alberta

Abstract

Sexual communication is an essential element of sexual satisfaction and wellbeing. However, individuals with communication difficulties (in reading, writing, speaking, or understanding language) may face barriers to sexual communication in interpersonal and healthcare contexts. Based on previous research, communication difficulties are associated with reduced intimacy (Lemieux et al., 2001; Korpelainen et al., 1999), difficulty accessing healthcare (Stransky et al., 2018), and increased vulnerability to sexual assault (Brownlie et al., 2007; 2017). Individuals with communication difficulties also report lower general and social self-efficacy compared to individuals without communication difficulties (Botting et al., 2016; Durkin et al., 2017). Given these low levels of self-efficacy, it was hypothesized that individuals with communication difficulties may have less confidence in their ability to navigate discussions of sex and sexual health.

Using Social Cognitive Theory (SCT) (Bandura; 1986) as a framework, this study explored the relationship between self-efficacy and subsequent sexual behaviours (use of sexual healthcare services, avoidance of sexual healthcare services, use of protection during sexual encounters, and frequency of sexual health discussions with a partner). Participants with and without communication difficulties completed an anonymous online survey ($N = 262$; $N = 43$ with self-reported communication difficulties; $M_{age} = 28.39$, $SD_{age} = 10.97$; 185 females). Mann Whitney U-tests compared individuals with and without communication difficulties on three measures of self-efficacy (general, sexual communication, and healthcare communication), as well as level of self-reported comfort and confidence in accessing sexual health services. Significant differences were found between groups, with individuals who reported communication difficulties scoring lower on all five variables. Regression analyses were used to explore the utility of the three self-efficacy constructs in predicting behavioural outcomes. Healthcare communication self-efficacy predicted access to sexual healthcare, and less avoidance. Sexual communication self-efficacy predicted less avoidance of

sexual healthcare. These findings suggest that individuals with communication difficulties experience greater barriers to sexual communication and sexual healthcare than the general population, and that specific self-efficacy constructs predict sexual healthcare utilization. Potential implications for clinical practice are discussed, including the importance of initiating conversations about sexuality and building task-specific forms of self-efficacy in communication intervention.

Preface

This thesis is an original work by Shelby Hughes. No part of this thesis has been previously published. The project received research ethics approval from the University of Alberta Research Ethics Board (The Influence of Self-efficacy and Language Abilities on Sexual Communication Outcomes, Pro00107100, February 19, 2021).

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1. Introduction

In 2002, the World Health Organization (WHO) described sexuality as "a central aspect of being human…experienced and expressed in thoughts, fantasies, desires, beliefs, attitudes, values, behaviours, practices, roles, and relationships" (p. 5). Sex is an important part of life for most adults, and is related to overall quality of life. However, fully *expressing* one's sexuality with a partner requires effective communication. Examples of sexual communication include conversations about sexual preferences, initiating sex, discussing past sexual encounters, or negotiating whether or not to use condoms. These sorts of discussions may be qualitatively different than communication about non-sexual topics, insofar as they require heightened levels of intimacy and vulnerability. As Montesi et al. (2010) described, "one must be willing to tolerate the feeling of being at risk and exposed to potential rejection, embarrassment, or humiliation when self-disclosing private and intimate personal information" (p. 592). As such, many people feel uncomfortable talking about sex, and, in turn, may find it difficult to express their sexuality with partners or professionals (Pliskin et al., 1997; van Teijlingen et al., 2006). This paper will outline potential barriers to effective sexual communication among individuals with communication difficulties, and discuss the results of a large-scale survey on self-efficacy and sexual health behaviours.

1.1 Sexual Outcomes Associated with Communication Difficulties

As defined by the American Speech-Language-Hearing Association (ASHA), communication disorders are impairments in the ability to process, understand, receive, or send communicative information via verbal or nonverbal systems (1993). There are four general subtypes of communication disorders: speech disorders, language disorders, hearing disorders, and auditory processing disorders (ASHA, 1993). The effects of these disorders vary widely, ranging from mild to severe difficulties in one or more domains of communication (speaking, understanding, reading, and/or writing.) Impairments may occur in isolation, or may be the result of a broader diagnosis such as a developmental disorder, learning disability, autism spectrum disorder (ASD), etc. In 2012, approximately 10% of American adults

reported a problem with their speech, language, or voice (Morris et al., 2016). However, only 2% had received a formal diagnosis (Morris et al., 2016). In Canada, it is estimated that over 440,000 people are currently living with communication impairments unrelated to hearing loss (Communication Disabilities Access Canada, 2021). For the purposes of this study, communication difficulties refer to any self-reported impairment in reading, writing, speaking, or understanding language, regardless of etiology or presence of a formal diagnosis.

1.1.1 Intimacy in Relationships

Despite the inextricable relationship between sex and communication, there is limited research on how individuals with communication difficulties navigate conversations about sexuality. However, it is clear that communication difficulties can hinder sexual expression. For example, Lemieux et al. (2001) conducted interviews with people with aphasia (PWA) and their spouses, who unanimously reported that aphasia had a negative impact on their sex life; specifically, aphasia was said to reduce 1.) emotional intimacy, 2.) sexual satisfaction, and 3.) ability to initiate sex. Most couples agreed that improving communication skills would improve their sex life (Lemieux et al., 2001). Further, a study by Korpelainen et al. (1999) found that a decline in sexual functioning among PWA was most significantly associated with inability to discuss sexuality (Korpelainen et al., 1999).

1.1.2 Sexual Healthcare

Historically, individuals with disabilities have faced challenges in accessing sexual healthcare (see Antaki & Finlay, 2012; East & Orchard, 2014) – and these barriers seem to extend to persons with relatively 'hidden disabilities' (i.e., non-physical impairments). For example, individuals with learning disabilities who have been hospitalized because of sexual assault are less likely to receive follow-up care than individuals without disabilities (Olsen et al., 2017). Survivors of sexual assault who have learning disabilities are also less likely to access counselling services than non-disabled survivors (Olsen et al., 2017). Among individuals with communication disabilities, numerous studies have documented low

satisfaction with healthcare as a result of poor patient-provider communication (Hoffman et al., 2005; Morris et al., 2013; Murphy et al., 2006; Nicolaidis et al., 2013; Nordehn et al., 2006). Furthermore, Stransky et al. (2018) found that people with communication disabilities had more frequent healthcare visits, worse health outcomes, and more difficulty accessing healthcare than individuals without communication disabilities. One such communication disability, namely low literacy, is associated with difficulty understanding sexual terms commonly used in patient reported outcome measures (Alexander et al., 2014; Wang et al., 2013). Terms such as "vaginal penetration," "erection," "ejaculation," "labia," and "incontinence" may be unfamiliar or misunderstood by low-literacy populations, controlling for sociodemographic status (Alexander et al., 2014). This lack of understanding could impact patients' interactions with sexual healthcare by reducing the quality and comprehension of healthcare conversations, or contributing to inaccurate/incomplete outcome data.

1.1.3 Sexual Assault

Beyond challenges with miscommunication and/or interpretation of information, communication difficulties may also contribute to increased vulnerability. In a survey of augmented/alternative communication (AAC) users (both men and women), a staggering 22% reported that they had been forced to have sex, while 39% had experienced unwanted sexual touching (Bryen et al., 2003). While the majority of research on 'hidden' disabilities focuses on individuals with intellectual disabilities rather than communication difficulties specifically, there is some evidence that people with physical disabilities are more likely to experience abuse if they have a comorbid speech disorder (Sobsey, 1994). In more recent work, women and children with language impairments appear to be at increased risk of sexual assault or abuse compared to the general population. Retrospective surveys of women who participated in a longitudinal study found that at age 25, women with language disorders were 2.5 to 3 times more likely to have experienced sexual abuse or assault than women who did not have language disorders (Brownlie

et al., 2007; 2017). Taken together, these findings suggest that communication difficulties further exacerbate vulnerability to sexual assault.

1.2 Why Does Sexual Communication Matter?

1.2.1 Psychological Outcomes

Despite the potential discomfort surrounding discussions of sexuality, sexual communication has several important benefits. Retrospective analyses suggest that sexual communication in adolescence may predict later sexual wellbeing; for example, a study by Mastro et al. (2015) found that young adults who had had more frequent discussions about sex with their mothers and/or best friends while in high school reported greater competence surrounding safe-sex practices. In addition, frequency of sexual communication with fathers predicted more positive emotions toward sex (Mastro et al., 2015). In the context of sexual and romantic relationships, sexual communication is associated with greater satisfaction; couples who communicate openly about sex are more likely to experience satisfaction with sex in general, as well as with their relationships (Byers & Demmons, 1999; MacNeil & Byers, 2009; Masters et al., 1986; Montesi et al., 2010).

1.2.2 Behavioural Outcomes

In addition to satisfaction and wellbeing, sexual communication is also linked to subsequent sexual behaviour. Parent-child discussions about sex predict fewer risky sexual behaviours (such as unprotected sex) during adolescence (Aspy et al., 2007; Wilson & Donenberg, 2004), and increased likelihood of sexual communication with a partner (Schonfeld Hicks et al., 2013). In adult populations, most research on sexual communication focuses on the prevention of sexually transmitted infections (STIs) and promotion of safe-sex practices. Sexual communication is an important predictor of condom use and safe sex behaviours across many different populations (e.g., Saftner et al., 2021; Widman et al., 2006; Wright et al., 2012; Xiao et al., 2013.)

1.3 Social Cognitive Theory

Having established the importance of sexual communication, it is important to consider predictors of sexual communication and how these may differ for individuals with communication difficulties. Social cognitive theory (SCT) is a theoretical framework developed by Bandura in 1986. It is used to explain and predict behaviour change and maintenance. According to SCT, behaviour is adopted and maintained based on reciprocal determinism – the complex interaction between cognitive, behavioural, and environmental factors (Bandura, 1986; 1994; 1997; 2004). A key component of the framework is self-efficacy, defined as one's belief in their ability to accomplish their goals. Self-efficacy develops through observational learning (i.e., seeing that someone else can succeed at a given task), and – most importantly – opportunities for behavioural mastery (i.e., succeeding at a task yourself) (Bandura, 1994; 1997). Both theoretically and empirically, self-efficacy is associated with motivation. People who believe they can succeed are more likely to attempt a particular goal; conversely, individuals with low self-efficacy may avoid tasks they perceive to be challenging (Bandura, 1994; Shim & Ryan, 2005).

1.3.1 Self-Efficacy and Sexual Communication

Applied to sexual communication, this theory could suggest that individuals with communication difficulties – who are reported to have lower general and social self-efficacy (e.g., Botting et al., 2016; Durkin et. al, 2017) – may avoid talking about sex. Indeed, recent findings from Brasiliero et al. (2021) suggest that social self-efficacy predicts sexual communication self-efficacy (SCSE). Social/communication self-efficacy has also been shown to predict condom use, willingness to discuss safe sex, and frequency of sexual communication (Dilorio et al., 2001; Halpern-Felsher et al., 2004; Norwood & Zhang, 2015; Xiao et al., 2013). Although most scholars argue that self-efficacy is task-specific, others believe that general self-efficacy (GSE) about a person's overall competence also holds predictive value (Shelton, 1990; Leganger et al., 2000). In the context of sexual health, there is some evidence to support this claim; for example, a study of older adults found that those who had higher general self-efficacy (GSE) and more frequent discussions about sexual health were more motivated to pursue goals related to sexual wellbeing (Graf et al., 2021).

Overall, SCSE could have important ramifications for individuals' ability to navigate interpersonal relationships and fully express their sexuality. It could also have implications for how individuals utilize sexual health services. McCormick (1980) was the first to call speech pathologists to action regarding sexual communication, citing the concept that sex is an inherently communicative act. However, evidence suggests that many health professionals feel uncomfortable discussing issues of sexuality with their patients, or uncertain that it falls within their scope of practice (Maguire et al., 2019; Mellor et al., 2013; O'Connor et al., 2019; Zhang et al., 2013). Given the potential for negative sexual outcomes described above, it is important to further understand the attitudes and experiences of individuals with communication difficulties as they relate to sexual communication.

1.4 The Present Study

The purpose of the present study was twofold: First, to identify group-level differences in self-efficacy and attitudes toward sexual healthcare between adults with and without communication difficulties (CD versus no-CD). Next, based on the SCT framework, to explore potential behavioural outcomes of self-efficacy. Three self-efficacy constructs were selected - general (GSE), sexual communication (SCSE), and healthcare communication (HCSE). The following hypotheses were made:

H1. Individuals with CD will have lower scores across all three self-efficacy constructs compared to controls.

H2. Individuals with CD will feel less comfortable accessing sexual health services compared to controls.

H3. Individuals with CD will feel less confident in their ability to access sexual health services compared to controls.

Finally, exploratory regression analyses investigated which forms of self-efficacy are most useful for predicting subsequent sexual health behaviours. The behaviours of interest were 1) frequency of sexual health communication with a partner, 2) frequency of condom use, 3) sexual healthcare access,

and 4) avoidance of sexual healthcare. These findings may help guide the implementation of self-efficacy building techniques in clinical practice.

2. Methodology

2.1 Participants

A total of 262 adult participants completed an anonymous online survey through the *Qualtrics* survey platform. Eligibility criteria required that participants be at least 18 years old and fluent in English. Participants were recruited from a variety of online sources including Facebook, Twitter, Instagram, Reddit, and several online participant recruitment sites. A list of 39 Canadian organizations who potentially serve populations with communication difficulties (e.g., literacy, developmental language disorder, aphasia, and ASD networks) were also contacted. Of these, only five agreed to share recruitment materials via listservs, newsletters, or online advertisement. Individuals received no compensation for their participation in this study. The study was approved by the Human Research Ethics Board at the University of Alberta (Pro00107100, 2021).

2.2 Materials and Measures

2.2.1 Self-identification

Prior to completing the study, participants had to correctly answer a comprehension check ("*what is the purpose of this study*"?) to demonstrate sufficient understanding required to complete the survey. The survey itself was designed to be accessible by offering participants a "read-aloud" option, using different color fonts for the questions and response options, and ensuring the content was fairly easy to read (Flesch-Kincaid grade level of 6.1 and reading ease score of 69.8).

Participants were asked to provide demographic information and language/literacy history (see Table 1). Inclusion in the CD or no-CD group was based on self-identified difficulty with some aspect of language (reading, writing, speaking, understanding language). Participants who indicated they had difficulty in one or more of these domains were presented follow-up questions asking them to rate the

severity of their difficulties from mild to severe, and when these difficulties began (childhood or adulthood). All participants were asked to indicate whether they had received a diagnosis of language disorder, learning disability, a reading problem (e.g., dyslexia), or autism spectrum disorder (ASD), or if they suspected they might have one of these conditions. Further, participants were able to indicate if there was another condition or injury (such as a brain injury or different developmental disorder) that makes language difficult for them. See Table 2 for information on specific diagnoses within the CD group.

2.2.2 New General Self-efficacy Scale (NGSES; Chen et al., 2001)

The NGSE Scale is an 8-item measure of general self-efficacy (GSE) – an individual's generalized belief in their competence regardless of context. Compared to specific constructs of self-efficacy which are more situationally-based (e.g., SCSE), GSE is considered an individual characteristic rather than a belief (Chen et al., 2001; Gardner & Pierce, 1998; Judge et al., 1997). Validation studies demonstrated good reliability of the NGSE Scale, with Cronbach's alpha levels of $\alpha = .87$, $\alpha = .88$, and .85 (Chen et al., 2001). In the present study, internal consistency reliability was also high ($\alpha = .92$).

The NGSE Scale uses a 5-point Likert scale to assess agreement with statements such as "I will be able to achieve most of the goals that I have set for myself." For the purposes of this study, a 4-point Likert scale from 1 (*strongly disagree*) to 4 (*strongly agree*) was used, eliminating the option for a "neutral" response. A neutral midpoint may increase the participants' likelihood of refraining from taking a stance, due to social desirability bias (Garland, 1991).

2.2.3 Sexual Communication Self-efficacy Scale (SCSES; Quinn-Nilas et al., 2016)

The SCSE Scale measures level of self-efficacy regarding 20 sexual communication activities. Participants are asked to indicate how difficult they find a particular interaction with a sexual partner (e.g., "refuse to have sex if they won't use a condom," or "ask if they are having sex with other people"), ranging from 1 (*very difficult*) to 4 (*very easy*). The scale consists of five factors: 1) contraceptive

communication, 2) condom negotiation, 3) sexual history, 4) positive sexual messages, and 5) negative sexual messages. All five of these constructs are associated with frequency of sexual communication, the intent to communicate, relationship quality, and sexual self-awareness (Quinn-Nilas et al., 2016). Further, higher scores on the SCSES are associated with decreased levels of interpersonal violence and sexual pressure (Quinn-Nilas et al., 2016). A validation study indicated strong internal consistency and construct validity across all five factors of the scale (Quinn-Nilas et al., 2016). The totalled scores in this study had a Cronbach's alpha of $\alpha = .93$.

2.2.4 Ask, Understand, Remember Assessment (AURA; Clayman et al., 2010)

The AURA is a four-item measure assessing patient communication self-efficacy in clinical contexts. Participants indicated their agreement with four statements: *"It is easy for me to ask my doctor questions," "It is easy for me to ask for help if I don't understand something," "It is easy for me to understand my doctor's instructions,"* and *"It is easy for me to remember my doctor's instructions."* Responses range from 1 to 4 depending on whether participants agree or disagree "a little," or "a lot", with higher scores indicating greater agreement. Previous studies indicate that the AURA has high internal consistency, and is related to health literacy, health knowledge, and other self-efficacy measures related to chronic disease management (Clayman et al., 2010). It was selected for inclusion in this study due to its readability and brevity, as well as its general nature (i.e., it is not specific to disease-type or clinical population.)

2.2.5 The Partner Communication Scale (PCS; Milhausen et al., 2007)

The PCS was designed to assess how frequently adolescent girls engage in sexual communication with a male sex partner. The original scale asks participants how many times in the past six months they have discussed five different topics with their sexual partner: how to prevent pregnancy, how to prevent STIs, how to prevent the AIDS virus, how to use condoms, and their partner's sex history. Responses are

measured with a 4-point Likert scale from 0 to 3 (*never, sometimes/1 to 3 times, often/4 to 6 times, a lot/7+ times*).

In the present study, participants were presented with a yes/no question about whether they had ever had sex before. Only those who indicated they had had sex completed the PCS. In addition, the scale was modified so responses were not based on the past 6 months. Given that this study took place during a global pandemic, it is likely that some individuals were less able to engage in social and sexual activity than they might otherwise be. Therefore, participants were instructed to consider their most recent sexual partner; participants were then asked how often they discussed the above-mentioned topics within the first six months of having sex with that partner.

2.2.6 Sexual Healthcare History

Participants who indicated they had had sex before were asked how frequently they use some form of protection (condoms or dentals dams) during sexual encounters; responses were organized on a 5-point scale from 0 (*never*) to 4 (*always*). Information was also collected about how participants use and interact with sexual healthcare services. Participants were asked to estimate how many times per year they visit a doctor or healthcare worker due to a sexual health question or concern. They were also asked how many times they have avoided seeing a doctor when they have a sexual health question or concern.

Additionally, participants' comfort and confidence in accessing sexual healthcare was assessed with single-question measures. Participants rated their level of endorsement of the statement "*I feel confident that I can access sexual healthcare services when I need them*," on a 6-point Likert scale from strongly disagree to strongly agree. Finally, participants rated how comfortable they felt talking about sexual health with a doctor or other healthcare worker utilizing another 6-point Likert scale, with higher scores indicating greater comfort.

3. Results

3.1 Demographics

Participants ranged in age from 18 to 82 years old (M_{age} = 28.39, SD_{age} = 10.97). The sample was predominantly Caucasian (71.8%), with Asian (6.1%), South Asian (5%), and Multiethnic (4.3%) identities being the next most common. The majority of participants identified as women (64.5%); 26.3% identified as men, and 7.3% identified as non-binary. Most participants (85.5%) indicated that they had had sex before; 13% had not had sex, and 1.5% chose not to answer.

A one-way ANOVA found no significant difference in age between the CD and no-CD groups $F(1, 256) = 2.178$, $p = .141$. Potential group differences on categorical variables were assessed using chi square tests of independence. Results indicated that the groups were not significantly different regarding sex, $\chi2$ (1, $N = 255$) = .91, $p = .763$, relationship status, $\chi2$ (5, $N = 258$) = 4.06, p = .541, relationship length, $\chi2$ (5, $N = 252$) = .77, $p = .979$, sexual orientation, $\chi2$ (6, $N = 258$) = 7.64, $p = .266$, ethnic identity, $\chi2$ (9, $N = 253$) = 1.95, $p = .163$, or level of completed education, $\chi2$ (5, $N = 258$) = 7.72, $p = .172$. There was also no difference between groups regarding the use of English as a primary language, $\chi2$ (1, $N = 258$) = 1.95, $p = .163$. However, the two groups differed significantly in reported gender identity, $\chi2$ (2, $N = 257$) = 6.314, $p = .043$. Follow-up comparisons revealed that a larger proportion of the CD group identified as non-binary (16.3%) compared to the control group (5.6%). See Table 1 for detailed demographic information.

Table 1
Distribution of Demographic Characteristics by Group

	CD *n* = 43	No CD *n* = 219
Age	*M* = 26.14 (*SD* = 6.66)	*M* = 28.84 (*SD* = 11.60)
Relationship Status		
Single	14 (32.6%)	66 (30.1%)
Causally dating	6 (14.0%)	16 (7.3%)
Non-married committed relationship	13 (30.2%)	93 (42.5%)
Married/civil union	9 (20.9%)	36 (16.4%)
Legally separated/divorced	1 (2.3%)	3 (1.4%)
Widowed	0 (0%)	1 (0.5%)
Ethnicity		

African/Black	0 (0%)	1 (0.5%)
Caucasian/White	31 (72.1%)	157 (71.7%)
South Asian	1 (2.3%)	12 (5.5%)
Asian/East Asian	3 (7.0%)	13 (5.9%)
Indigenous/Aboriginal	1 (2.3%)	7 (3.2%)
Hispanic/Latinx	1 (2.3%)	5 (2.3%)
Middle Eastern/North African/Arab	1 (2.3%)	6 (2.7%)
Pacific Islander	0 (0%)	3 (1.4%)
Multiethnic	0 (0%)	11 (5.0%)
Prefer not to say	5 (11.6)	0 (0%)
Education		
Some high school	1 (2.3%)	2 (0.9%)
High school diploma	7 (16.3%)	14 (6.4%)
Some college/university	16 (37.2%)	73 (33.3%)
Completed undergraduate	10 (23.3%)	86 (39.3%)
Graduate school or above	8 (18.6%)	36 (16.4%)
Vocational degree/certificate	1 (2.3%)	4 (1.8%)
Sexual Orientation		
Straight	22 (51.2%)	132 (60.3%)
Gay	2 (4.7%)	6 (2.7%)
Lesbian	4 (9.3%)	7 (3.2%)
Bisexual	7 (16.3%)	46 (21%)
Pansexual	4 (9.3%)	9 (4.1%)
Asexual	2 (4.7%)	4 (1.8%)
Other	2 (4.7%)	11 (5.0%)
Length of Current or Last Relationship		
Less than 3 months	7 (16.3%)	31 (14.2%)
3-6 months	3 (7.0%)	19 (8.7%)
6-12 months	4 (9.3%)	21 (9.6%)
1-2 years	7 (16.3%)	47 (21.5%)
3-5 years	8 (18.6%)	43 (19.6%)
More than 5 years	11 (25.6%)	51 (23.3%)
English Primary Language		
Yes	37 (86.0%)	199 (90.9%)
No	6 (14.0%)	16 (7.3%)
Gender		
Man	12 (27.9%)	57 (26.0%)
Woman	24 (55.8%)	145 (66.2%)
Non-binary*	7 (16.3%)	12 (5.5%)
Sex		
Male	11 (25.6%)	59 (26.9%)
Female	32 (74.4%)	153 (69.9%)

Note: *$p < .05$

3.1.1 Communication Difficulties

Of the 43 participants who reported some form of CD, most rated their difficulties as relatively mild or moderate (95.3%). Only a small percentage of participants perceived their difficulties as severe (4.7%). The majority of participants' difficulties began in childhood (90.7%). See Table 2 for information on specific diagnoses and reported difficulties within the CD group.

Table 2
Distribution of Difficulty and Diagnosis Characteristics

	Diagnosis	
Condition	Received	Suspected
	$n = 43$	$n = 22$
Language Disorder	4 (9.3%)	6 (14.0%)
Learning Disability	20 (46.5%)	6 (14.0%)
Autism Spectrum Disorder	4 (9.3%)	5 (11.6%)
Dyslexia	17 (39.5%)	5 (11.6%)
Other (e.g., brain injury or developmental delay)	10 (23.3%)	
Self-reported Difficulties		
Difficulty with reading	20 (46.5%)	
Difficulty with writing	19 (44.2%)	
Difficulty producing spoken language	31 (72.1%)	
Difficulty understanding spoken language	31 (72.1%)	

3.2 Part I: Comparisons Between CD and no-CD Groups

A series of independent samples *t*-tests compared the CD and no-CD groups on self-efficacy and attitudes toward sexual healthcare. All five dependent variables violated assumptions of normality, based on the results of Shapiro-Wilk's tests. Therefore, a non-parametric equivalent (the Mann-Whitney *U* test) is reported.

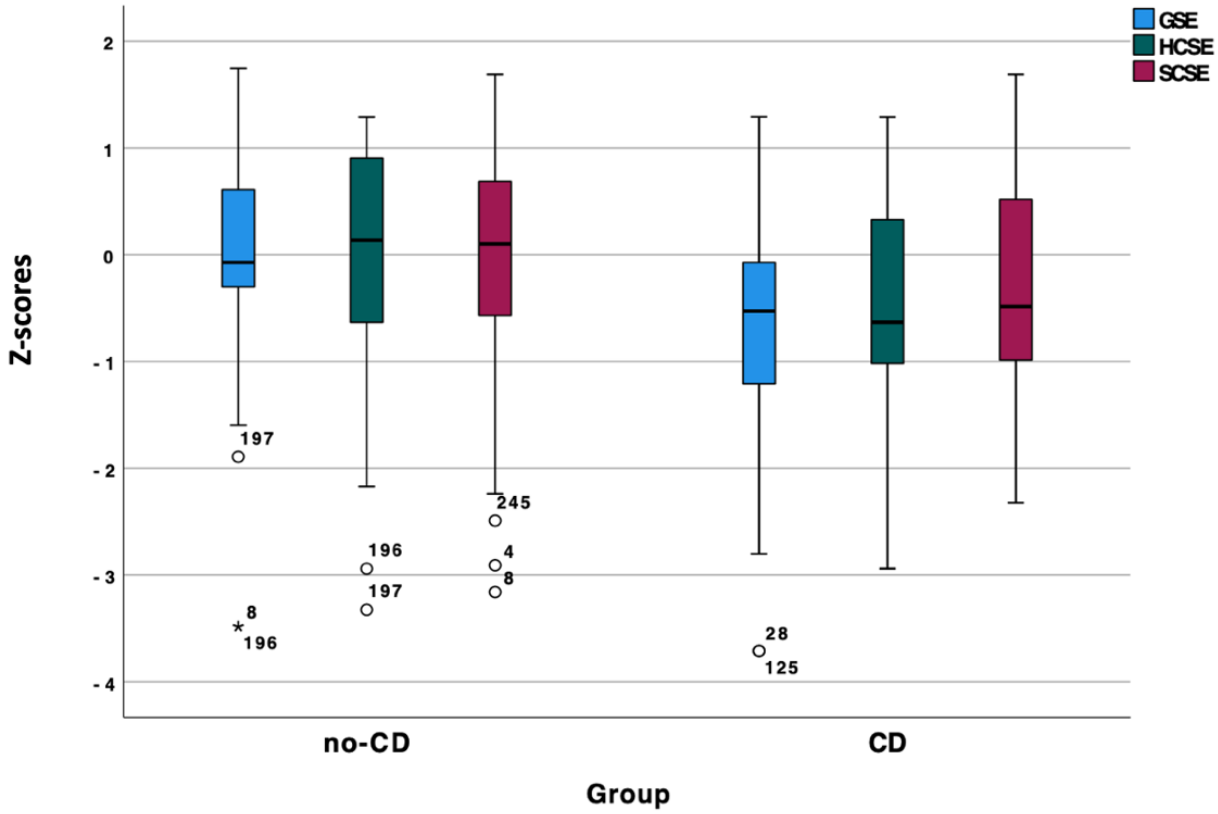
3.2.1 Self-Efficacy

Participants with communication difficulties reported lower levels of self-efficacy across all three variables: GSE (Mean = 21.04, $U = 2565.5$, $p < .001$), HCSE (Mean = 11.34, $U = 3189.5$, $p < .001$), and

SCSE (Mean = 56.24, $U = 3669$, $p = .022$) compared to those without communication difficulties (Means = 24.96, 12.90, and 60.50, respectively; see Figure 1).

Figure 1

Self-efficacy Constructs by Group



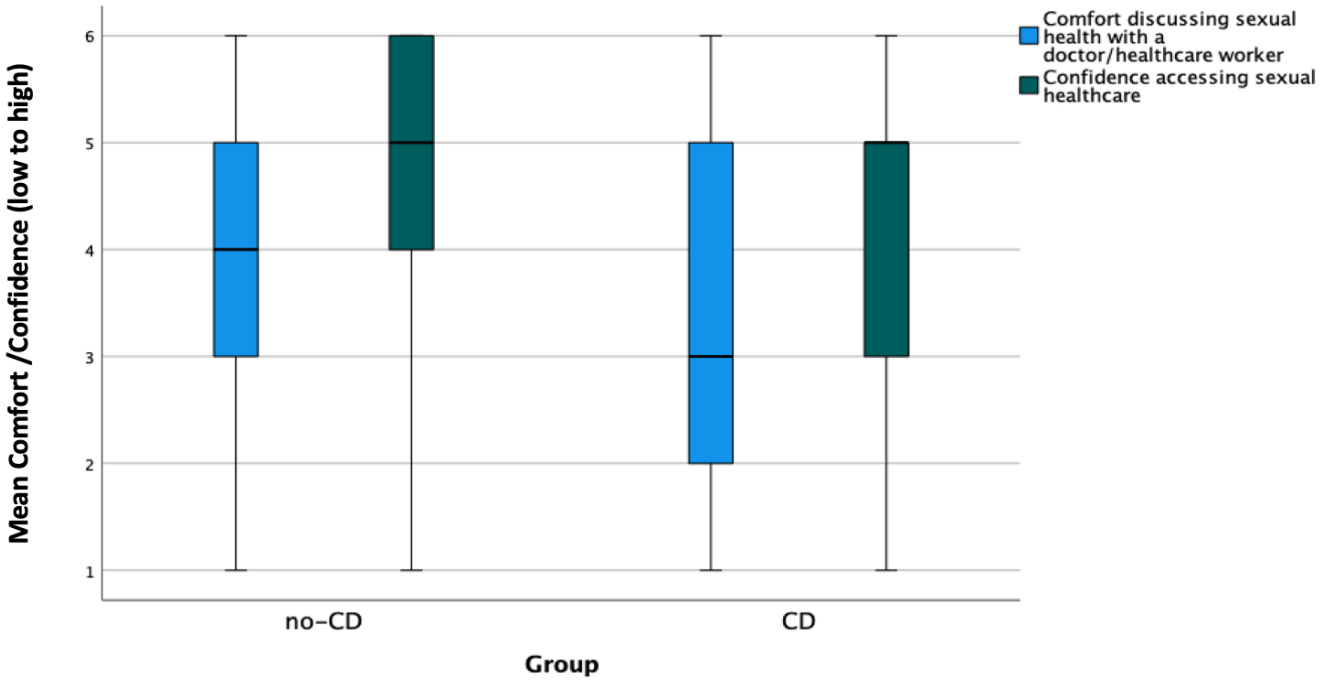
3.2.2 Attitudes Toward Sexual Healthcare

In general, comfort and confidence with sexual healthcare was decreased among participants with communication difficulties. Compared to the no-CD group (Mean = 3.96), participants who reported communication difficulties were less comfortable speaking to a doctor or other healthcare worker about sexual health (Mean = 3.19, $U = 3400.5$, $p = .003$). The CD group also indicated less confidence in their

ability to access sexual health services (Mean = 4.07) compared to the no-CD group (Mean = 4.66, U = 3649.5, p = .015). See Figure 2.

Figure 2

Comfort and Confidence by Group



3.3 Part II: Self-Efficacy as a Predictor of Sexual Behaviour

Regression analyses examined associations between self-efficacy scores and sexual behaviours. Age, gender, sexual orientation, and relationship status were controlled for in the model. A priori testing indicated no other violations regarding multicollinearity - variance inflation factor (VIF) was <2 for all predictors.

3.3.1 Sexual Healthcare Use

Almost all participants reported that they generally never use sexual healthcare services (49.2%), or that they visit their doctor for a sexual health reason 1-2 times per year (44.7%). For this reason, binary logistic regression was used to test predictors of sexual healthcare use (1+ sexual healthcare visit per year) versus no use. The overall model was significant, $\chi 2$ (17, $N = 262$) = 47.095, $p < .001$, with approximately 22.3% of variance explained by the 17 levels of predictors (Nagelkerke Pseudo-R^2 = .223). Participants were more likely to access sexual healthcare if they had high levels of healthcare communication self-efficacy (β = .161, *SE* = .07, $p = .021$), identified as a man (β = 1.082, *SE* = .366, $p = .003$), identified as a lesbian (β = 1.103, *SE* = .391, $p = .005$), or were casually dating (β = .813, *SE* = .355, $p = .005$). Odds ratios indicate that for every one unit increase in healthcare communication self-efficacy, the odds of accessing sexual healthcare increased by a factor 1.175 [95% CI: 1.024 to 1.347]. See Table 3.

Table 3
Predictors of Sexual Healthcare Use

	β	SE	*p*	Odds Ratio [95% CI]
Self-efficacy				
General	-.017.	.036	.629	
Sexual communication	-.002	.014	.885	
Healthcare communication	.161	.070	.021*	1.175 [1.024-1.347]
Age	-.002	.016	.910	
Gender				
Man	1.082	.366	.003**	2.950 [1.441-6.040]
Woman	1.096	.649	.091	
Nonbinary	0[a]			
Sexual Orientation				
Straight	.670	.802	.403	
Gay	-.981	.770	.203	
Lesbian	1.103	.391	.005**	3.014 [1.40-6.49]

Bisexual	.919	.647	.155	
Pansexual	-.147	1.00	.883	
Asexual	-.189	6.36	.767	
Other	0[a]			
Relationship Status				
Single	.771	.538	.151	
Casually dating	.813	.355	.022*	2.254 [1.123-4.523]
Non-married committed	.366	.472	.438	
Married/civil union	-.585	1.229	.634	
Separated/divorced	20.657	40192.969	1.00	
Widowed	0[a]			

Note: Odd ratios only reported for significant predictors. * $p < .05$, ** $p < .01$

3.3.2 Avoidance of Sexual Healthcare

Predictors of sexual healthcare avoidance were assessed using an ordinal logistic regression (ORL). The overall model was significant, $\chi 2$ (17, $N = 262$) = 50.77, $p < .001$, and accounted for approximately 19.6% of variance (Nagelkerke Pseudo-R^2 = .196). Of all variables, only sexual communication self-efficacy (β = -.036, SE = .0119, p = .003) and healthcare communication self-efficacy (β = -.17, SE = .0524, p = .001) predicted likelihood of avoidance. An increase in healthcare communication self-efficacy decreased the odds of avoidance by 15.6% [OR = .844, 95% CI = .761 to .935]. Sexual communication self-efficacy also inversely predicted avoidance, though to a lesser extent; odds ratios indicated a 3.5% decrease in avoidance for every one unit increase in sexual communication self-efficacy [OR = .965, 95% CI = .943 to .988].

Table 4
Predictors of Sexual Healthcare Avoidance

	β	SE	*p*	Odds Ratio [95% CI]
Self-efficacy				
General	-.015	.031	.640	.
Sexual communication	-.042	.012	.003**	.965 [.943-.988]

Healthcare communication	-.157	.059	.001**	.844 [.761-.935]
Age	-.008	.014	.573	.
Gender				
Man	-.197	.571	.730	.
Woman	-.331	.512	.518	.
Nonbinary	0[a]			
Sexual Orientation				
Straight	.516	.592	.383	.
Gay	1.621	.902	.072	
Lesbian	-.503	.829	.544	.
Bisexual	.377	.618	.542	
Pansexual	1.363	.768	.076	.
Asexual	-1.125	1.035	.277	.
Other	0[a]			
Relationship Status				
Single	-1.393	2.039	.494	.
Casually dating	-.462	2.051	.822	
Non-married committed	-.861	2.013	.669	.
Married/civil union	-1.146	2.011	.569	.
Separated/divorced	.833	2.170	.701	.
Widowed	0[a]	0[a]		

Note: Odds ratios only reported for significant predictors, using a generalized linear model. ** $p < .01$

3.3.3 Frequency of Protection Use

Since the assumption of proportional odds were violated, a multinomial logistic regression was conducted instead of OLR. Although the overall model was significant, $\chi 2\ (266, N = 262) = 494.748$, $p < .001$, none of the measures of self-efficacy contributed significantly to probability estimates ($p > .05$ for all three self-efficacy variables.)

3.3.4 Frequency of Partner Communication

Five outliers were removed in order to meet assumptions of a multinomial logistic regression, as a violation of proportional odds made OLR invalid. Although sexual communication self-efficacy and age

were significant predictors on their own (p = .027 and p = .001, respectively), the overall model did not reach significance, $\chi 2$ (242, N = 252) = 268.45, p = .117.

4. Discussion

Communication is an essential part of sexual wellbeing. In this study, the purpose was to 1) compare the self-efficacy and attitudes of individuals with and without communication difficulties, and 2) explore whether certain types of self-efficacy predict sexual health behaviours. Results suggest that people with communication difficulties have different attitudes than the general population regarding sexual health and self-efficacy. Hypothesis 1 was supported; compared to controls, individuals with communication difficulties had lower self-efficacy beliefs regarding their overall competence (general self-efficacy), sexual communication, and healthcare communication. These findings align with previous research on general and social self-efficacy among individuals with language impairments (e.g., Botting et al., 2016; Durkin et al., 2017). Findings also supported Hypothesis 2 and Hypothesis 3; individuals with communication difficulties reported less comfort and confidence in accessing sexual healthcare. In addition, specific constructs of self-efficacy appear to be more useful in predicting sexual outcomes than general self-efficacy.

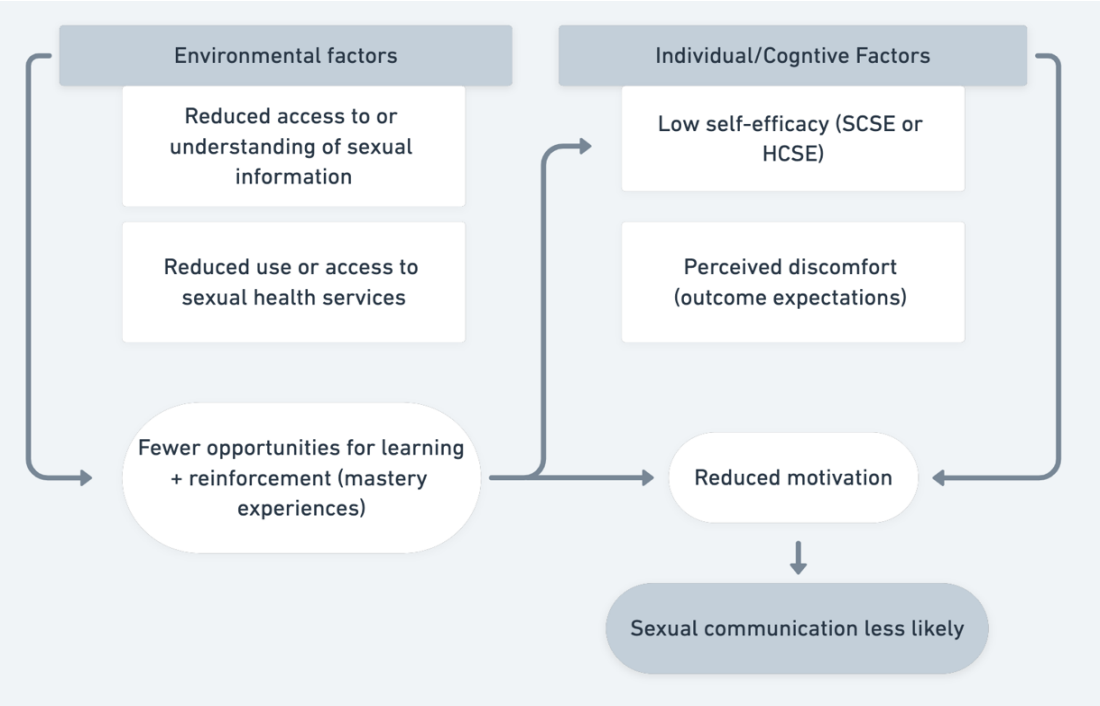
4.1 A Conceptual Model of Self-Efficacy and Sexual Communication

Based on an SCT framework, I propose the following model of how self-efficacy beliefs, attitudes to sexual healthcare, and environmental factors might influence sexual communication among individuals with communication difficulties (see Figure 3). Lack of access to sexual health services (e.g., Olsen et al., 2017; Stransky et al., 2018), comprehension (e.g., Alexander et al., 2014), or effective communication with healthcare providers (e.g., Hoffman et al., 2005; Morris et al., 2013; Murphy et al., 2006; Nicolaidis et al., 2013; Nordehn et al., 2006) may limit opportunities for mastery experiences that build self-efficacy. As a result, individuals with communication difficulties may avoid sexual communication contexts, and sexual healthcare in particular.

Regarding sexual communication with a partner, the results of this study were not conclusive; self-efficacy did not predict how frequently participants discussed sexual health in the first six months of a sexual relationship, or how frequently they used protection during sex. It is possible that environmental factors such as social support and inclusion may play a more important role than self-efficacy. For example, perceived social support has been shown to mediate the negative psychological outcomes of low social self-efficacy in individuals with language impairments (Botting et al., 2016). Greater social inclusion, and subsequently greater opportunity for sexual communication encounters, may also provide observational learning opportunities (e.g., Bandura, 1994) to motivate sexual communication behaviours. Social support may also minimize the perceived risk or discomfort (e.g., Montesi, 2010) of expressing sexuality. Further research is needed to explore these potential predictors of sexual communication in the context of intimate relationships, particularly among individuals with communication difficulties.

Figure 3

Conceptual Model of Sexual Communication and Communication Difficulties



4.2 Practical Implications

4.2.1 Initiation of Sexual Healthcare

In this study, participants with communication difficulties reported low comfort and confidence in their ability to access sexual healthcare. This aligns with previous research suggesting that individuals with communication difficulties find it difficult to access healthcare services (Stransky et al., 2018). Sexual healthcare, specifically, may pose an additional challenge due to the "taboo" nature of sexuality in cultural discourse. Healthcare providers may feel uncomfortable or unprepared to discuss issues of sexuality with their patients (Maguire et al., 2019; Mellor et al., 2013; Zhang et al., 2013), and many indicate that they will only discuss sexual health if explicitly asked to do so (Maguire et al., 2019; Zhang et al., 2013). In other words, accessing sexual healthcare requires a degree of self-advocacy. The present findings suggest that low self-efficacy regarding sexual and healthcare communication predict avoidance of sexual healthcare. As such, clinicians should be aware that individuals with communication difficulties may be less likely to initiate conversations about sexual health, even when they have a question or concern. Research by Lemieux et al. (2001) supports this suggestion; in interviews of PWA and their spouses, none of the couples had asked about sexual concerns, and none of their doctors had ever brought up the subject. However, 80% of couples wished their physicians would have discussed potential sexual concerns with them. As such, healthcare professionals should recognize the potentially unmet needs of individuals with (and without) communication difficulties, and be encouraged to initiate discussions about sexuality with their patients.

4.2.2 Specificity and Utility of Self-Efficacy Intervention

In this study, general self-efficacy had no predictive value in determining sexual communication outcomes. This finding suggests that in order to facilitate effective sexual communication with a partner or healthcare professional, speech pathologists may wish to increase the specificity of their clients' goals; self-efficacy gains resulting from unrelated tasks may not generalize to sexual communication contexts.

In other words, improving sexual health and communication outcomes may require more task-specific intervention.

Given the importance of sexual communication for overall wellbeing, sexual communication goals could be important functional targets in intervention for people with communication difficulties. Based on an SCT framework, intervention specifically targeting sexual and/or health communication would increase opportunities for mastery experiences, and thereby self-efficacy in regards to these tasks. Past programs have had success targeting specific types of self-efficacy in order to promote condom use intentions (Rosenstock et al., 2020), HIV/STI prevention (Kulik et al., 2016), reading fluency (Aro et al., 2018), and other outcomes. The present findings provide preliminary evidence that self-efficacy building may also help promote sexual communication behaviour.

Healthcare communication self-efficacy in particular was very useful at predicting avoidance of sexual healthcare, with increases associated with 15.6% lower odds of avoidance. Sexual communication self-efficacy had a relatively lower impact, but was still significant in predicting avoidance. Therefore, intervention aimed at increasing these forms of self-efficacy (directly or indirectly) may empower people to advocate for their sexual health, and seek out the services they need.

4.3 Limitations and Future Directions

A major limitation of this study is the lack of specificity surrounding communication difficulties. The study included anyone with any self-reported difficulty in communication, making the sample very heterogenous; as such, it is difficult to make inferences about specific diagnostic groups. Further research is needed to examine the sexual communication needs and challenges associated with particular diagnostic groups or types of difficulties. At present, the results of this study are limited in their generalizability.

Further, participants reported primarily mild or moderate difficulties in communication; results may not reflect the experiences of individuals with more severe presentations. However, obtaining

significant results with this sample may indicate low probability of Type I error, as individuals with more severe communication difficulties likely present with greater sexual communication and self-efficacy challenges. In this case, between-groups comparisons would likely be more salient.

It is also important to consider that responses are assumed – but not confirmed – to be accurate. Although a comprehension check was required at the start of the survey, individuals with reading or comprehension difficulties may have misinterpreted or responded inaccurately to certain questions. Although efforts were taken to improve survey accessibility (i.e., read-aloud software, colour-coding, and readability scores), it is impossible to fully assess how well participants comprehended the survey questions. Similarly, since all data was collected based on self-report (and dealt with fairly sensitive topics), it is possible that participants' responses reflect attempts to portray themselves positively (social desirability bias). However, the anonymity of the online survey may have helped mitigate this potential bias.

Lastly, the measure of partner communication used may not reflect actual sexual communication with a partner. The PCS, which was validated on a sample of adolescent girls, may have lacked validity in this study. Approximately 70% of participants indicated that they had never discussed the subject of AIDs with a partner. This result could indicate a cohort effect, reflecting reduced salience of AIDs among younger participants. Further, the item regarding discussions of pregnancy would be redundant for individuals in same-sex encounters. Overall, this measure did not assess sexual communication in interpersonal relationships on an appropriately broad scope. In the future, researchers may wish to explore sexual communication with partners by taking into account discussions beyond sexual health; for example, one could look at sexual initiation, refusal of sex, communicating desires, etc.

5. Conclusions

To my knowledge, this is the first study to explore different types of communication self-efficacy and sexual health behaviours among individuals with communication difficulties. The findings highlight

differences in self-efficacy constructs and attitudes toward sexual healthcare between groups with and without communication difficulties. Individuals with communication difficulties had lower levels of self-efficacy in all three domains: general, sexual communication, and healthcare communication, as well as lower comfort and confidence in accessing sexual healthcare. Analyses showed the utility of sexual communication and healthcare communication self-efficacy in predicting access and avoidance behaviours, specifically in the context of sexual healthcare. Collectively, these results highlight potential barriers to sexual health and wellbeing among individuals with communication difficulties. Clinicians should consider the task-specificity of intervention, and consider building on specific forms of communication self-efficacy to promote sexual communication behaviours. Finally, clinicians should strive to limit the need for self-advocacy about sexual health, by initiating conversations and recognizing the importance of sexual communication in overall quality of life.

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